

NEW SPECIES OF CESTODES FROM AUSTRALIAN BIRDS.

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DILEPIS BANCROFTI n. sp.

(Pl. 15, figs. 1-7.)

THIS parasite, which may measure 96 mm. in length and possess a maximum breadth of almost 3 mm., occurs fairly frequently in the rosella parrot, *Platycercus eximius* Shaw, in New South Wales and Southern Queensland.

The scolex is a small pyriform organ, .146 mm. in diameter, and succeeded directly by the segmented strobila. The suckers (.050 mm. in diameter) and rostellum are small. Owing to the retracted condition of the latter in all specimens examined, the characters of the hooks were not determined.

The proglottids are thin and flat; they overlap very slightly and do not project prominently laterally. The genital pores open on the right-hand margin of the strobila on the summit of a well-marked papilla in the anterior half of each segment.

The cuticle is quite thin. Below it, the longitudinal musculature is arranged in two series, an outer ring of very numerous small bundles or, rather, fibres, and an inner ring of much larger bundles. Above and below the central portion of the medulla, the bundles may be more closely massed together. Both dorso-ventral and transverse fibres are weakly developed. In regard to the excretory system, there are present dorsal and ventral canals as well as commissural vessels between ventral trunks, but the dorsal tubes are very small and lie directly above the wide ventral canals. The sex-duets pass above both excretory vessels and the longitudinal nerve, which is situated just laterally from the ventral canal. The male duct lies parallel to and just above the vagina, opening dorsally to the latter into the narrow common genital canal.

The testes consist of from sixty to seventy vesicles (about .025 mm. in diameter), arranged in two layers, and lying laterally from the centrally situated female complex. A few vesicles are present behind and above the

vitellarium. Some overlie the uterine branches and also some of the ovarioles. The vas deferens is an uncoiled tube passing outwards almost in a straight line to enter the cirrus sac. The latter is a pyriform structure nearly .2 mm. long and .09 mm. broad at its inner end, which contains a small vesicula. The cirrus appears to be short.

The ovary is a large organ, consisting of numerous ovarioles and situated anteriorly in the mid-region of the segment. Behind it lies the irregularly lobed vitellarium. Between the two is the shell-gland above which is part of the receptaculum seminis. The vagina travels inwards from the female pore which is just below the male aperture, a sphincter surrounding its outer end. Its course is below and parallel to the male duct but above the excretory canals. After passing over the latter, the lumen becomes somewhat widened and the vagina rises dorsally above the ovary and the developing uterus. That portion which overlies the ovary, the shell-gland, and part of the vitellarium, is much wider and constitutes a receptaculum seminis. In the region of the shell-gland it meets with the oviduct which travels postero-dorsally from the ovary, and also the vitelline duct which passes forwards and upwards. The fertilising duct or, rather, the narrow uterine duct, so formed, continues anteriorly below the receptaculum but above the ovary as a sinuous tube. Just above the mid-region of the female gland, it enters the transversely situated tubular uterus. Each branch of the latter extends outwards and backwards between the ovarioles, and curves downwards to pass below the testes, terminating near the posterior angle of the segment, where it may overlie the excretory vessels. The single tube soon develops caeca which become larger, so that ultimately the uterus comes to consist of two much-branched tubes more or less filling the segment with their ramifications. It thus has not quite the form typically met with in species of *Dilepis*.

The species is named in honour of Dr. T. L. Bancroft, of Eidsvold, Burnett River, who for several years past has rendered me assistance in collecting material.

CHOANOTÆNIA ZONIFERÆ n. sp.

(Pl. 15, fig. 8.)

A few fragments of a small delicate cestode, probably belonging to the genus *Choanotania*, were taken from a black-breasted plover, *Zonifer tricolor* Vicill., shot near Bathurst, N.S. Wales. Sexually mature segments are trapezoidal (fig. 8) and possess a breadth of about .33 mm., while egg-bearing proglottids are .8 mm. wide. The genital pores alternate fairly regularly, the ducts apparently passing between the excretory canals.

The testes occupy a restricted zone behind the female glands and consist of from twenty to twenty-five vesicles arranged in two or three layers. Some partly overlie the ovarian wings. The vas deferens is thrown into coils above the inner end of the cirrus sac. The latter is a tubular structure, about .15 mm. long and .02 mm. wide.

The bilobed ovary is slightly displaced from the midline towards the pore-bearing edge and its transverse axis is somewhat obliquely placed. The triangular vitellarium lies just behind it, being overlapped anteriorly by part of the large shell-gland. The female pore is situated just behind the male aperture. Passing inwardly from it is the wide thin-walled sinuous vagina which crosses above the ovary. The mature uterus is a sac-like structure occupying the posterior portion of the segment. Ripe eggs measure .045 mm. in diameter, the oncosphere being about .019 mm.

CHOANOTÆNIA TAYLORI n. sp.

(Pl. 16, figs. 9, 10.)

Length about 30 mm.; maximum breadth .8 mm. From the intestine of a blue wren, *Malurus cyanochlamys* Sharpe, collected by Dr. J. B. Cleland near Adelaide, South Australia.

The specimens are poorly preserved, and sections have not been of much use. The scolex is relatively small (.13 mm. broad), and bears prominent suckers (.045 mm. in diameter) and rostellum. Hooks had fallen away from the specimens. The genital pores alternate fairly regularly, the sex-ducts passing above the ventral vessel and nerve. Transverse vessels are present but dorsal canals were not recognised.

There are about twenty testicular vesicles, .04 mm. in diameter, arranged in a group behind the female complex. The vas deferens forms a coiled mass overlying the inner end of the cirrus sac, which is a pyriform organ .013 mm. long and .04 mm. in maximum width, containing a spiny cirrus, .080 mm. long when everted.

Each lobe of the ovary is irregularly branched. The large vitellarium lies behind it. The narrow vagina lies just behind, and parallel to, the cirrus sac, but bends backwardly to pass above the middle of the ovary. The mature uterus is suggestive of that occurring in *Monopylidium* and in certain species of *Choanotænia*. Eggs measure about .038 mm. in diameter, the contained oncosphere being .019 mm. in diameter and the hooklets .013 mm. long.

The species is named after my friend Mr. F. H. Taylor, Entomologist to the Australian Institute of Tropical Medicine, Townsville, who has at various times assisted me by collecting entozoa.

ZOSTEROPICOLA CLELANDI n. gen., n. s.p.

(Pl. 16, figs. 11-15.)

Length 40 mm.; greatest breadth 0.6 mm.

This parasite infests the common silver-eye, *Zosterops cerulescens* Lath., specimens having been collected by Dr. J. B. Cleland, Mr. J. O. Heinrich, and myself at various times, in the neighbourhood of Sydney.

The scolex is a relatively large rounded organ, .35 mm. broad, with four suckers measuring .13 mm. in diameter, and a small retractile rostellum bearing a single row of fairly long stout hooks whose characters were not determined. There is a gradual narrowing to form an unsegmented neck region beyond which are numerous narrow segments. Further back the proglottids become more trapezoidal, the posterior margins projecting prominently (fig. 13). It is in the narrow segments that male maturity is reached (fig. 12). Genital pores alternate fairly regularly and lie in the anterior half of each proglottis. The sex-ducts pass below the nerve and both excretory canals.

The longitudinal musculature consists of two concentric series, each composed of numerous bundles, those of the outer ring being smaller than those of the inner. A well-defined interval separates the two groups. Delicate transverse and dorso-ventral fibres are recognisable. Lying above and inwardly from each ventral excretory vessel is a small dorsal tube, while the transverse or commissural canal extends between the ventral vessels in the form of an arch. The main longitudinal nerve is situated laterally from each ventral canal.

The male organs consist of usually five vesicles, rarely four or six, placed in a line and occupying a dorsal position in the middle of the segment. One of the testes may be at a lower level than the remainder. They measure about .02 mm. in diameter. The male duct travels ventrally, becoming thrown into coils in the neighbourhood of and also within the cirrus sac. The latter is a small organ .065 mm. long and .02 mm. wide at its inner end, terminating in a short genital cloaca. As already mentioned, both the male and female ducts pass below the excretory canals and nerve.

The female complex is difficult to interpret. It approaches the pore-bearing edge and appears as an elongate mass below the testes. The individual organs—ovary, vitellarium, shell-gland—were not distinguished. The vagina, which opens beside and just behind the male aperture, travels inwards becoming slightly swollen to form a receptaculum seminis lying ventrally and anteriorly to the uterus in ripening segments. In the mid-region of ripe proglottids and those approaching maturity is a mass of modified tissue continuous with, but distinct from, the uterus. It is in this paruterine organ, in the posterior segments, that the eggs come to lie. It does not possess a definite cavity. The uterus is a simple, rounded, well-defined sac lying postero-ventrally to it. Eggs measure .04 mm. by .030 mm., the embryo possessing a diameter of .021 mm.

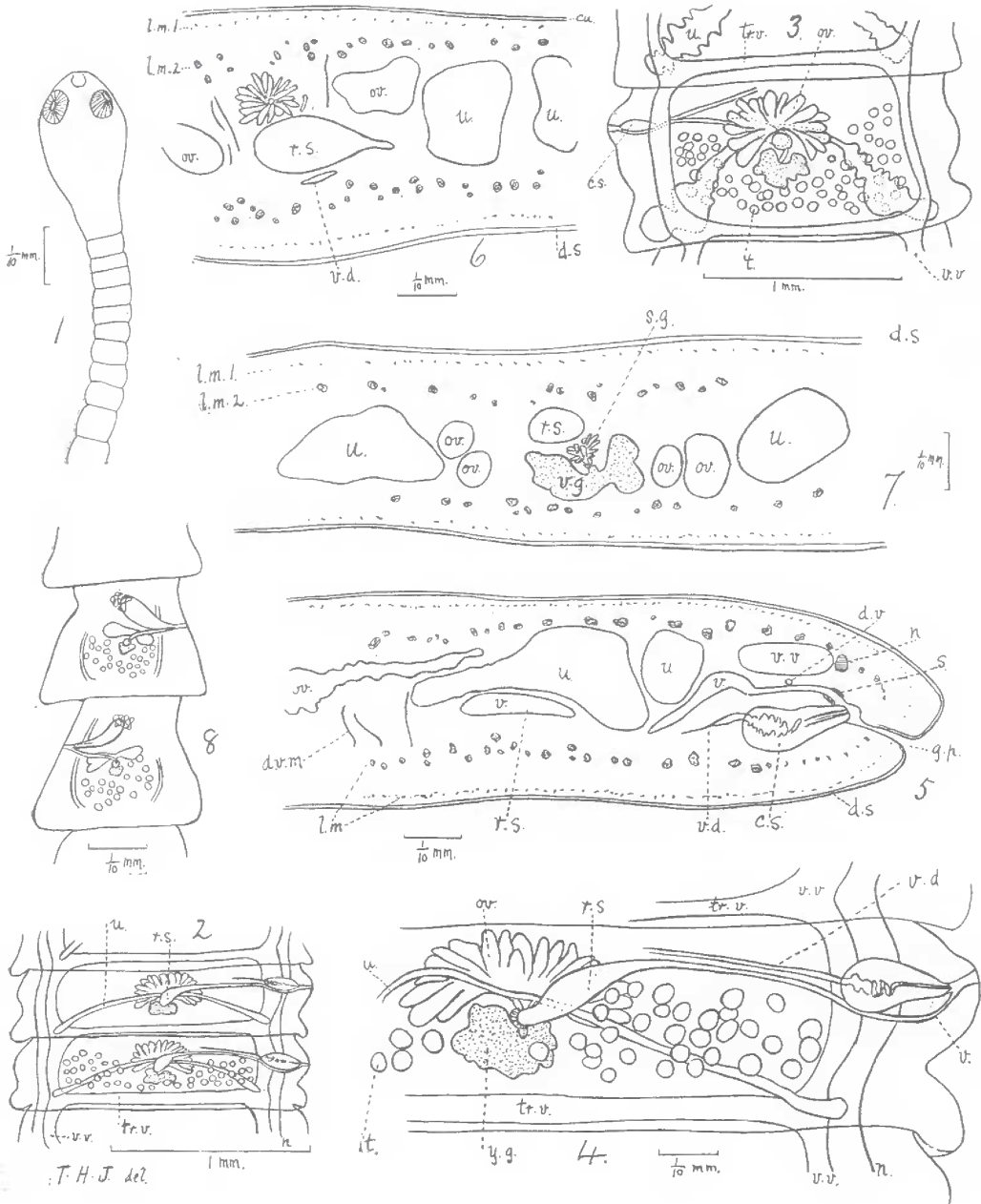


FIG. 1-7.—*Dilepis bancrofti* Johnston.

FIG. 8.—*Choanotenia zonifera* Johnston.

This species, with which I associate the name of my former colleague, Dr. J. B. Cleland, of Sydney, possesses characters which appear to me to be of generic importance, consequently a new genus *Zosteropicola* is erected to receive it. The provisional characters may be summarised thus:—

Scolex armed with single circle of hooks; genitalia alternating more or less regularly; testes few (about five), and arranged in a line transversely; genital ducts passing below the excretory vessels and the longitudinal nerve; paruterine organ present. Family Hymenolepidida; subfamily Paruterininae.

This genus lies very near *Anonchotænia* Cohn, but differs from it in the arrangement of the testes and also in the possessing of hooks on the scolex.

Type: *Z. clelandi* Instn.

Host: *Zosterops carulescens* Lath.

The types of all the above species have been deposited in the collection of the Queensland Museum, Brisbane; their registered numbers being—*Dilepis bancrofti*, G 12/114; *Choanotænia zoniferæ*, G 12/112; *C. taylori*, G 12/111; and *Zosteropicola clelandi*, G 12/113.

DESCRIPTION OF PLATES.

PLATE 15.

- DILEPIS BANCROFTI.**
- Fig. 1. Scolex.
2, 4. Sexually mature segments (dorsal).
3. Ditto, (ventral).
5. Transverse section of segment.
6. Ditto, showing vitellarium.
7. Ditto, showing shell-gland.

CHOANOTÆNIA ZONIFERÆ.

8. Segments showing anatomy (dorsal).

PLATE 16.

CHOANOTÆNIA TAYLORI.

9. Scolex.
10. Segment.

ZOSTEROPICOLA CLELANDI.

11. Scolex.
12. Segments showing male and female genitalia (dorsal).
13. Segments showing uterus, etc.
14. Transverse section of segment.
15. Longitudinal horizontal section of segments.

Explanation of Lettering.—*c.*, cirrus; *c.s.*, cirrus sac; *cu.*, cuticle; *d.s.*, dorsal surface; *d.v.*, dorsal vessel; *d.v.m.*, dorso-ventral muscle fibres; *e.*, eggs; *g.c.*, genital cloaca; *g.p.*, genital pore; *l.m.* 1., *l.m.* 2., longitudinal musculature; *n.*, longitudinal nerve; *o.v.*, ovary; *par.*, paruterine organ; *r.s.*, receptaculum seminis; *s.*, sphincter; *s.g.*, shell-gland; *t.*, testis; *tr.m.*, transverse muscle fibres; *tr.v.*, transverse excretory vessel; *u.*, uterus; *v.*, vagina; *v.g.*, vitellarium; *v.s.*, vesicula seminalis; *v.v.*, ventral excretory vessel.